UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/419,439	10/15/1999	THOMAS D. HARTNETT	RA-5274	1274

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ART UNIT	PAPER NUMBER
2124	

DATE MAILED: 01/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>03 November 2003</u>.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-22</u> is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1,2,5,6,11-14,19 and 20</u> is/are rejected.

7)☒ Claim(s) <u>3, 4, 7-10, 15-18, 21 and 22</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

   a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: .

DETAILED ACTION

Claims 1-22 are pending and have been examined.

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2.   Claims 1, 2, 5, 11-12 and 19-20 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Alexander et al. (USPN 6,029,006).

In regard to claim 1, Alexander disclosed the limitations:

- *For use in a data processing system having an instruction processor to*
  execute instructions included in the instruction set of the instruction processor
  (Figure 1), a system for programmably controlling the variable number of the
  instructions beginning execution within the instruction pipeline during (column
  2, lines 54-57; Figures 1 and 17), *comprising:*

- *a first storage device to receive and to store a programmable count value*
  indicative of a predetermined number of instructions (Figure 17, elements
  23, 30 and 31 revealing INTERVAL register and E register); *and*

- *a logic sequencer coupled to said first storage device to receive said*
  programmable count value (Figures 1 and 17)

Alexander did not explicitly state initiating simultaneous execution on a variable number

of instructions in a predetermined period of time via a pipeline control signal. Alexander

demonstrated that it was known at the time of invention to implement circuits using a

pipeline system (column 4, line 50 to column 5, line 35). Official Notice is taken that it

was known at the time of invention to implement pipelining using a synchronous pipeline

(which forces each stage to a standard cycle length equal to the other stages). It would

have been obvious to one of ordinary skill in the art at the time of invention to implement

Alexander's processor with a synchronous pipeline. This implementation would have

been obvious because one of ordinary skill in the art would be motivated to provide the

benefits of power conservation to all types of processors (column 2, lines 52-54). Using

such an implementation, one of ordinary skill in the art at the time of invention would

understand the processor itself defines a *predetermined period of time* (synchronous

pipeline) and the interval of Alexander defines the variable number of instructions that

are being executed in the pipeline (by allowing only so many instructions into the

defined period of time of the pipeline).

In regard to claim 2, Alexander disclosed the limitation *further including programmable*

enable logic to selectively enable said logic sequencer to be responsive to said

programmable count value (column 12, lines 55-64; Figure 17, general).

In regard to claim 5, Alexander disclosed the limitation *further including scan enable*

logic coupled to said logic sequencer to programmably enable said logic sequencer to

repeatedly generate said pipeline control signal to initiate execution of said

predetermined number of the instructions during successive periods of time that are

each equal to the predetermined period of time (column 12, lines 55-64; enable logic

allows for repeated generation of signal to control number of instructions in pipeline).

In regard to claim 11, the limitations of the claim correspond to the limitations of claim 1

and as such are rejected in the same manner.

In regard to claim 12, the limitations of the claim correspond to claims 2 and 5 and are

rejected in the same manner.

In regard to claims 19-20, the limitations of the claim 19 correspond to the limitations of

claim 1 and as such are rejected in the same manner. Claim 20 corresponds to claim 5.

3.   Claims 6 and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Alexander et al. (USPN 6,029,006) in view of Zaidi et al. (USPN 5,996,064) in

further view of Bertin et al. (USPN 6,345,362).

In regard to claim 6, Alexander did not explicitly state the limitations:

- *wherein said first storage device is adapted to receive, and to store, a*
  respective first one of said programmable count values for each of first
  selectable ones of the instructions, and

◆ *wherein said programmable enable logic includes circuits to enable said logic*

sequencer to receive, for any of said first selectable ones of the instructions,

said respective first one of said programmable count values when said any of

said first selectable ones of the instructions enters the instruction pipeline to

begin execution.

Zaidi demonstrated that it was known at the time of invention to combine a count value

with individual instructions (Zaidi: Figure 4B). Bertin demonstrated that it was known at

the time of invention to attempt control of instructions based upon power usage (Bertin:

abstract). It would have been obvious to one of ordinary skill in the art at the time of

invention to implement Alexander's system of threshold control with a instruction

providing its own INTERVAL field as found in Zaidi's teaching. This implementation

would have been obvious because one of ordinary skill in the art would be motivated to

control a processors execution power consumption based upon energy hungry or un-

hungry instructions (instruction power consumption illustrated in Bertin). Instructions

become *selectable* based upon Alexander's E field.

In regard to claim 13, the limitations of the claim relate to claim 6 and are rejected the

same as for claim 6 here.

In regard to claim 14, the limitations of the claim relate to claim 6 and are rejected in the

same manner.

Allowable Subject Matter

4.   Claims 3-4, 7-10, 15-18 and 21-22 are objected to as being dependent upon a

rejected base claim, but would be allowable if rewritten in independent form including all

of the limitations of the base claim and any intervening claims. The following is a

statement of reasons for the indication of allowable subject matter: the base claims

contain limitations, which are not reasonably disclosed or suggested in the prior art of

record. Specifically, the base claims 3, 4, 7, 15 and 21 contain limitations regarding a

relationship or combination between instructions providing a value to control the

initiation of simultaneous number of instructions in a pipeline in a predetermined period

of time. All other claims are allowable for at least the reasons stated for the above

claims to which they all respectfully depend.

Response to Arguments

5.   Applicant's arguments filed 3 November 2003, in regard to claim 1, have been

fully considered but they are not persuasive. Applicant argues **Alexander** fails to

disclose "*a first storage device to receive and to store a programmable count value*

indicative of a predetermined number of instructions". Under the broadest reasonable

interpretation of the claim language, Applicant's argument is flawed and incorrect. The

term *indicative* in no way limits the *count value* to an actual number of instructions

entering the pipeline (for instance, count value = 5 and then 5 instructions enter the

pipeline). Indicative reads as making and indication (pointing out or to something). It

does not read, "count value *is* a predetermined number ...". Further limitations of claim

1 include, "... *sequencer ... to receive said programmable count value, and in response*

thereto, to generate a pipeline <u>control signal</u> ... to cause the instructions pipeline to

receive, and <u>to initiate ... execution</u> on, the predetermined number of instructions ...".

This limitation does not provide a further definition of *count value* such that it must be an

actual number of instructions entering the pipeline. The additional limitation cannot

refute the *indicative* statement, which already defines *count value*. All this being said,

Alexander provides a value, which *indicates* (though possibly indirectly) a number of

instructions in a pipeline in a predetermined period of time (defined by implementing the

pipeline as a synchronous pipeline). Applicant further argues the claimed invention's

count value supplies an *exact* number of instructions to begin execution (paper received

03 November 2003: page 6, line 10). The claim does not make mention of *exactly*. It

does, however, state *indicative*. For this reason, it can clearly be seen that the claimed

invention reads upon the cited prior art of **Alexander**.

Applicant's arguments filed 3 November 2003, in regard to claim 6, have been

fully considered but they are not persuasive. Applicant's arguments center on lack of

motivation to combine the three references (that the systems are different and not

concerned with the same time of individual instruction control). This however is refuted

by **Bertin** itself (column 1, lines 63-65; and column 2, lines 38-41). The systems are

similar and they are concerned with individual instructions (instructions concerned with

power usage). For this reason, it can clearly be seen that the claimed invention reads

upon the cited prior art.

The above points are believed to address all of Applicant's concerns and as such

the previous rejections are clearly valid. Other rejected claims, which Applicant

contests, are believed to be addressed by above arguments as well. Applicant's

claimed invention reads upon the cited prior art.

Conclusion

6.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William H. Wood whose telephone number is (703)305-3305. The examiner can normally be reached 7:30am - 5:00pm Monday thru Thursday and 7:30am - 4:00pm every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kakali Chaki can be reached on (703)305-9662. The fax phone numbers for the organization where this application or proceeding is assigned are (703)746-7239 for regular communications and (703)746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-3900.

William H. Wood
January 13, 2004

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